

Amendments to the Claims:

1. (Currently amended) A cell culture system comprising a pentameric peptide which enhances cell growth and/or secretion, wherein said peptide comprises a pentameric structure of at least one of (a) xxxkx, (b) xxkxx, (c) xxxk, (d) xkxxx, and (e) kxxxx, wherein k represents lysine and each x may be the same or different amino acid independently selected from the group consisting of lysine, alanine, isoleucine, phenylalanine, proline, valine, glycine, glutamine, leucine, methionine, asparagine, serine, threonine, tyrosine, aspartic acid, glutamic acid, histidine, and derivatives thereof, and wherein said peptide is ~~free or noncovalently immobilized to a cell culture surface~~ covalently linked to a growth factor, wherein said growth factor comprises at least one of bFGF, GCSF, an ILGF-1, or VEGF.
2. (Currently amended) The system of claim 1, wherein the peptide promotes adherence of anchorage-dependent cells on ~~the~~ a surface.
3. (Currently amended) The ~~peptide system~~ peptide of claim 1, wherein the peptide enhances cell growth and is selected from the group consisting of IFFKG (SEQ ID NO:1), FIKFG (SEQ ID NO:2), FIFAK (SEQ ID NO:3), QVVAK (SEQ ID NO:4), FKFIG (SEQ ID NO:5), AFFKI (SEQ ID NO:6), VFPFK (SEQ ID NO:7), AKIFF (SEQ ID NO:8), AFKIF (SEQ ID NO:9), KFAFI (SEQ ID NO:10), ~~and~~ FAKFI (SEQ ID NO:11), and combinations thereof.
4. (Currently amended) The system of claim 1, wherein the peptide enhances cell secretion and is selected from the group consisting of FKL VY (SEQ ID NO:16), KKKKK (SEQ ID NO:17), KKKKL (SEQ ID NO:18), FK K K Q (SEQ ID NO:19), FKFIG (SEQ ID NO:5), KKKSK (SEQ ID NO:20), KK L K (SEQ ID NO:21), FK K K K (SEQ ID NO:22), L K K K K (SEQ ID NO:23), K K L K K (SEQ ID NO:24), K K K K T (SEQ ID NO:25), K K P K K (SEQ ID NO:26), K K P Q Y (SEQ ID NO:27), S K K K K (SEQ ID NO:28), K V K K K (SEQ ID NO:29), K N Q T Y (SEQ ID NO:30), F K K K V (SEQ ID NO:31), K P K K K (SEQ ID NO:32), F F K K K (SEQ ID NO:33), H K N Q T (SEQ ID NO:34), F K L V G (SEQ ID NO:35), K K Q P K (SEQ ID NO:36),

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EKKQT (SEQ ID NO:37), EKKKK (SEQ ID NO:38), KKIKQ (SEQ ID NO:39), KKKKS (SEQ ID NO:40), KKQKK (SEQ ID NO:41), KKLNY (SEQ ID NO:42), DGKKT (SEQ ID NO:43), KKPTT (SEQ ID NO:44), KFIFG (SEQ ID NO:45), FKKMY (SEQ ID NO:46), FFFKK (SEQ ID NO:47), KQKKI (SEQ ID NO:48), HIKKK (SEQ ID NO:49), DFFHK (SEQ ID NO:50), AKKKK (SEQ ID NO:51), AHIKK (SEQ ID NO:52), AHKKK (SEQ ID NO:53), LKL VY (SEQ ID NO:54), PKQKK (SEQ ID NO:55), AKKKT (SEQ ID NO:56), and combinations thereof.

5. (Currently amended) The system of claim 1, wherein said peptide is introduced into the cell culture system at a concentration of about 500 μ M to about 6 mM.

6. (Currently amended) The system of claim 1, wherein said peptide is introduced into the cell culture system at a concentration of about 250 μ M to about 24 mM.

7. (Currently amended) The system of claim 1, wherein said peptide is introduced into the cell culture system at a concentration ranging from 3 mM to about 12 mM.

8. (Currently amended) ~~The system of claim 1,~~ A cell culture system comprising a pentameric peptide which enhances cell growth and/or secretion, wherein said peptide is HKNQT (SEQ ID NO:34), and wherein said peptide is present on ~~the~~ a surface in the form of a dried film.

9. (Previously presented) The system of claim 8, wherein said surface is two dimensional or three dimensional.

10. (Currently amended) The system of claim ~~1~~ 8, wherein the cell culture system comprises cells selected from the group consisting of epithelial, endothelial, dermal, neural, tumor, lymphocytic, stem cells, and combinations thereof.

11. (Previously presented) The system of claim 10, wherein said peptide increases oxygen consumption of said cells.

12. (Previously presented) The system of claim 10, wherein said peptide enhances growth of said cells *in vitro* or *in vivo*.

13. (Currently amended) The system of claim ~~4~~ 8, wherein the peptide is noncovalently attached or nonspecifically adsorbed to the surface.

14. (Previously presented) The system of claim 13 wherein said surface is coated with at least one of bovine serum albumin, ovalbumin, keyhole limpet haemocyanin, collagen, fibronectin, laminin, polylysine, a peptide having a cell-surface receptor recognition sequence, an immunoglobulin, a polysaccharide, or a growth factor.

15. (Previously presented) The system of claim 13 wherein said surface is selected from the group consisting of plastic dishes, plastic flasks, plastic microtitre plates, plastic tubes, sutures, membranes, films, bioreactors, hollow fibers, sacs and, microparticles.

16. (Currently amended) The system of claim ~~4~~ 8, wherein the peptide is covalently linked to a member of the group consisting of extracellular matrix protein, bovine serum albumin, ovalbumin, keyhole limpet haemocyanin, collagen, fibronectin, laminin, an immunoglobulin, a polysaccharide, a growth factor, and combinations thereof.

17. (Previously presented) The system of claim 16, wherein said member is adsorbed to a surface.

18. (Previously presented) The system of claim 16, wherein said growth factor comprises at least one of bFGF, GCSF, an ILGF-1, or VEGF.

19. (Previously presented) The system of claim 1, wherein the peptide is a media constituent.

20.-30. (Canceled)

31. (Currently amended) ~~The peptide of claim 30~~ A peptide which enhances cell secretion comprising HKNQT (SEQ ID NO:34), wherein said peptide is attached or nonspecifically adsorbed to a surface.

32. (Canceled)

33. (Currently Amended) A method of modifying a surface in a cell culture system so as to enhance cell growth and/or secretion in said system, comprising the step of noncovalently attaching or nonspecifically adsorbing to said surface a pentameric peptide comprising HKNQT (SEQ ID NO:34).~~a pentameric structure selected from the group consisting of (a) xxxkx, (b) xxkxx, (c) xxxk, (d) xkxxx, (e) kxxxx and combinations thereof, wherein k represents lysine and each x may be the same or different amino acid independently selected from the group consisting of lysine, alanine, isoleucine, phenylalanine, proline, valine, glycine, glutamine, leucine, methionine, asparagine, serine, threonine, tyrosine, aspartic acid, glutamic acid, histidine and derivatives thereof.~~

34. (Canceled)

35. (Currently amended) The method of claim 33, wherein the peptide enhances cell secretion ~~and is selected from the group consisting of FKL VY (SEQ ID NO:16), KKKKK (SEQ ID NO:17), KKKKL (SEQ ID NO:18), FK K K Q (SEQ ID NO:19), FK F I G (SEQ ID NO:5), K K K S K (SEQ ID NO:20), K K K L K (SEQ ID NO:21), FK K K K (SEQ ID NO:22), L K K K K (SEQ ID NO:23), K K L K K (SEQ ID NO:24), K K K K T (SEQ ID NO:25), K K P K K (SEQ ID NO:26), K K P Q Y (SEQ ID NO:27), S K K K K (SEQ ID NO:28), K V K K K (SEQ ID NO:29), K N Q T Y (SEQ ID NO:30), FK K K V (SEQ ID NO:31), K P K K K (SEQ ID NO:32), F F K K K (SEQ ID NO:33),~~

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~~HKNQT(SEQ ID NO:34), FKLVG(SEQ ID NO:35), KKQPK(SEQ ID NO:36), EKKQT(SEQ ID NO:37), EKKKK(SEQ ID NO:38), KKIKQ(SEQ ID NO:39), KKKKS(SEQ ID NO:40), KKQKK(SEQ ID NO:41), KKLNY(SEQ ID NO:42), DGKKT(SEQ ID NO:43), KKPTT(SEQ ID NO:44), KFIFG(SEQ ID NO:45), FKKMY(SEQ ID NO:46), FFFKK(SEQ ID NO:47), KQKKI(SEQ ID NO:48), HIKKK(SEQ ID NO:49), DFFHK(SEQ ID NO:50), AKKKK(SEQ ID NO:51), AHIKK(SEQ ID NO:52), AHKKK(SEQ ID NO:53), LKLVY(SEQ ID NO:54), PKQKK(SEQ ID NO:55), AKKKT(SEQ ID NO:56), and combinations thereof.~~

36.-43. (Canceled)

44. (Currently amended) A cell or tissue culture medium comprising HKNQT (SEQ ID NO: 34), ~~a peptide selected from the group consisting of FKL¹VY(SEQ ID NO:16), KKKKK(SEQ ID NO:17), KKKKL(SEQ ID NO:18), FK¹KKQ(SEQ ID NO:19), FKFIG(SEQ ID NO:5), KKKSK(SEQ ID NO:20), KKKLK(SEQ ID NO:21), FK¹KKK(SEQ ID NO:22), LKKKK(SEQ ID NO:23), KKLKK(SEQ ID NO:24), KKKKT(SEQ ID NO:25), KKP¹KK(SEQ ID NO:26), KKPQY(SEQ ID NO:27), SKKKK(SEQ ID NO:28), KVKKK(SEQ ID NO:29), KNQTY(SEQ ID NO:30), FK¹KKV(SEQ ID NO:31), KP¹KKK(SEQ ID NO:32), FF¹KKK(SEQ ID NO:33), HKNQT(SEQ ID NO:34), FKLVG(SEQ ID NO:35), KKQPK(SEQ ID NO:36), EKKQT(SEQ ID NO:37), EKKKK(SEQ ID NO:38), KKIKQ(SEQ ID NO:39), KKKKS(SEQ ID NO:40), KKQKK(SEQ ID NO:41), KKLNY(SEQ ID NO:42), DGKKT(SEQ ID NO:43), KKPTT(SEQ ID NO:44), KFIFG(SEQ ID NO:45), FKKMY(SEQ ID NO:46), FFFKK(SEQ ID NO:47), KQKKI(SEQ ID NO:48), HIKKK(SEQ ID NO:49), DFFHK(SEQ ID NO:50), AKKKK(SEQ ID NO:51), AHIKK(SEQ ID NO:52), AHKKK(SEQ ID NO:53), LKLVY(SEQ ID NO:54), PKQKK(SEQ ID NO:55), AKKKT(SEQ ID NO:56), DEETY(SEQ ID NO:57), HNPPY(SEQ ID NO:58), GGHMS(SEQ ID NO:59), AADEG(SEQ ID NO:60), GGGGS(SEQ ID NO:61), EEGLS(SEQ ID NO:62), HHPST(SEQ ID NO:63), FHHNT(SEQ ID NO:64), ADELN(SEQ ID NO:65), KKKK(SEQ ID NO:66), KKK(SEQ ID NO:67), KK(SEQ ID NO:68), OrnOrnOrn(SEQ ID NO:69), RRR(SEQ ID NO:70), and combinations thereof.~~

45.-47. (Canceled)

48. (Currently amended) A method for enhancing cellular growth and/or secretion comprising the step of culturing cells or tissues in the presence of HKNQT (SEQ ID NO: 34).~~a peptide selected from the group consisting of FKL¹VY(SEQ ID NO:16), KKKKK(SEQ ID NO:17), KKKKL(SEQ ID NO:18), FK¹KKQ(SEQ ID NO:19), FKFIG(SEQ ID NO:5), KKKSK(SEQ ID NO:20), KKKLK(SEQ ID NO:21), FK¹KKK(SEQ ID NO:22), LKKKK(SEQ ID NO:23), KKLKK(SEQ ID NO:24), KKKKT(SEQ ID NO:25), KKP¹KK(SEQ ID NO:26), KKPQY(SEQ ID NO:27), SKKKK(SEQ ID NO:28), KVKKK(SEQ ID NO:29), KNQTY(SEQ ID NO:30), FK¹KKV(SEQ ID NO:31), KP¹KKK(SEQ ID NO:32), FFK¹KK(SEQ ID NO:33), HKNQT(SEQ ID NO:34), FKL¹VG(SEQ ID NO:35), KKQPK(SEQ ID NO:36), EKKQT(SEQ ID NO:37), EKKKK(SEQ ID NO:38), KKIKQ(SEQ ID NO:39), KKKKS(SEQ ID NO:40), KKQKK(SEQ ID NO:41), KKLNY(SEQ ID NO:42), DGKKT(SEQ ID NO:43), KKPTT(SEQ ID NO:44), KFIFG(SEQ ID NO:45), FK¹KMY(SEQ ID NO:46), FFF¹KK(SEQ ID NO:47), KQKKI(SEQ ID NO:48), HIKKK(SEQ ID NO:49), DFFHK(SEQ ID NO:50), AKKKK(SEQ ID NO:51), AHIKK(SEQ ID NO:52), AHIKKK(SEQ ID NO:53), LKL¹VY(SEQ ID NO:54), PKQKK(SEQ ID NO:55), AKKKT(SEQ ID NO:56), DEETY(SEQ ID NO:57), HNPPY(SEQ ID NO:58), GGHMS(SEQ ID NO:59), AADEG(SEQ ID NO:60), GGGGS(SEQ ID NO:61), EEGLS(SEQ ID NO:62), HHPST(SEQ ID NO:63), FHHNT(SEQ ID NO:64), ADELN(SEQ ID NO:65), KKKK(SEQ ID NO:66), KKK(SEQ ID NO:67), KK(SEQ ID NO:68), OrnOrnOrn(SEQ ID NO:69), RRR(SEQ ID NO:70), and combinations thereof.~~

49.-52. (Canceled)

53. (New) The system of claim 1, wherein said peptide is present on a surface in the form of a dried film.

54. (New) The system of claim 53, wherein said surface is two dimensional or three dimensional.

55. (New) The system of claim 1, wherein the cell culture system comprises cells selected from the group consisting of epithelial, endothelial, dermal, neural, tumor, lymphocytic, stem cells, and combinations thereof.

56. (New) The system of claim 55, wherein said peptide increases oxygen consumption of said cells.

57. (New) The system of claim 55, wherein said peptide enhances growth of said cells *in vitro* or *in vivo*.

58. (New) The system of claim 1, wherein the peptide is noncovalently attached or nonspecifically adsorbed to a surface.

59. (New) The system of claim 58, wherein said surface is coated with at least one of bovine serum albumin, ovalbumin, keyhole limpet haemocyanin, collagen, fibronectin, laminin, polylysine, a peptide having a cell-surface receptor recognition sequence, an immunoglobulin, a polysaccharide, or a growth factor.

60. (New) The system of claim 58, wherein said surface is selected from the group consisting of plastic dishes, plastic flasks, plastic microtitre plates, plastic tubes, sutures, membranes, films, bioreactors, hollow fibers, sacs, and microparticles.

61. (New) The system of claim 1, wherein said peptide comprises a pentameric structure of xxxkx.

62. (New) The system of claim 1, wherein said peptide comprises a pentameric structure of xxkxx.

63. (New) The system of claim 1, wherein said peptide comprises a pentameric structure of xxxk.

64. (New) The system of claim 1, wherein said peptide comprises a pentameric structure of kxxx.

65. (New) The system of claim 1, wherein said peptide comprises a pentameric structure of kxxxx.

66. (New) The system of claim 3, wherein said peptide is IFFKG (SEQ ID NO:1).

67. (New) The system of claim 3, wherein said peptide is FIKFG (SEQ ID NO:2).

68. (New) The system of claim 3, wherein said peptide is FIFAK (SEQ ID NO:3).

69. (New) The system of claim 3, wherein said peptide is QVVAK (SEQ ID NO:4).

70. (New) The system of claim 3, wherein said peptide is FKFIG (SEQ ID NO:5).

71. (New) The system of claim 3, wherein said peptide is AFFKI (SEQ ID NO:6).

72. (New) The system of claim 3, wherein said peptide is VFPFK (SEQ ID NO:7).

73. (New) The system of claim 3, wherein said peptide is AKIFF (SEQ ID NO:8).

74. (New) The system of claim 3, wherein said peptide is AFKIF (SEQ ID NO:9).

75. (New) The system of claim 3, wherein said peptide is KFAFI (SEQ ID NO:10).

76. (New) The system of claim 3, wherein said peptide is FAKFI (SEQ ID NO:11).
77. (New) The system of claim 4, wherein said peptide is FKL VY (SEQ ID NO:16).
78. (New) The system of claim 4, wherein said peptide is KKKKK (SEQ ID NO:17).
79. (New) The system of claim 4, wherein said peptide is KKKKL (SEQ ID NO:18).
80. (New) The system of claim 4, wherein said peptide is FK K K Q (SEQ ID NO:19).
81. (New) The system of claim 4, wherein said peptide is FK FIG (SEQ ID NO:5).
82. (New) The system of claim 4, wherein said peptide is KKKSK (SEQ ID NO:20).
83. (New) The system of claim 4, wherein said peptide is KKKLK (SEQ ID NO:21).
84. (New) The system of claim 4, wherein said peptide is FK K K K (SEQ ID NO:22).
85. (New) The system of claim 4, wherein said peptide is LKKKK (SEQ ID NO:23).
86. (New) The system of claim 4, wherein said peptide is KKLKK (SEQ ID NO:24).
87. (New) The system of claim 4, wherein said peptide is KKKKT (SEQ ID NO:25).
88. (New) The system of claim 4, wherein said peptide is KKP KK (SEQ ID NO:26).
89. (New) The system of claim 4, wherein said peptide is KKP QY (SEQ ID NO:27).
90. (New) The system of claim 4, wherein said peptide is SKKKK (SEQ ID NO:28).

91. (New) The system of claim 4, wherein said peptide is KVKKK (SEQ ID NO:29).
92. (New) The system of claim 4, wherein said peptide is KNQTY (SEQ ID NO:30).
93. (New) The system of claim 4, wherein said peptide is FKKKV (SEQ ID NO:31).
94. (New) The system of claim 4, wherein said peptide is KPKKK (SEQ ID NO:32).
95. (New) The system of claim 4, wherein said peptide is FFKKK (SEQ ID NO:33).
96. (New) The system of claim 4, wherein said peptide is HKNQT (SEQ ID NO:34).
97. (New) The system of claim 4, wherein said peptide is FKLVG (SEQ ID NO:35).
98. (New) The system of claim 4, wherein said peptide is KKQPK (SEQ ID NO:36).
99. (New) The system of claim 4, wherein said peptide is EKKQT (SEQ ID NO:37).
100. (New) The system of claim 4, wherein said peptide is EKKKK (SEQ ID NO:38).
101. (New) The system of claim 4, wherein said peptide is KKKQ (SEQ ID NO:39).
102. (New) The system of claim 4, wherein said peptide is KKKKS (SEQ ID NO:40).
103. (New) The system of claim 4, wherein said peptide is KKQKK (SEQ ID NO:41).
104. (New) The system of claim 4, wherein said peptide is KKLNY (SEQ ID NO:42).

105. (New) The system of claim 4, wherein said peptide is DGKKT (SEQ ID NO:43).
106. (New) The system of claim 4, wherein said peptide is KKPTT (SEQ ID NO:44).
107. (New) The system of claim 4, wherein said peptide is KFIFG (SEQ ID NO:45).
108. (New) The system of claim 4, wherein said peptide is FKKMY (SEQ ID NO:46).
109. (New) The system of claim 4, wherein said peptide is FFFKK (SEQ ID NO:47).
110. (New) The system of claim 4, wherein said peptide is KQKKI (SEQ ID NO:48).
111. (New) The system of claim 4, wherein said peptide is HIKKK (SEQ ID NO:49).
112. (New) The system of claim 4, wherein said peptide is DFFHK (SEQ ID NO:50).
113. (New) The system of claim 4, wherein said peptide is AKKKK (SEQ ID NO:51).
114. (New) The system of claim 4, wherein said peptide is AHIKK (SEQ ID NO:52).
115. (New) The system of claim 4, wherein said peptide is AHKKK (SEQ ID NO:53).
116. (New) The system of claim 4, wherein said peptide is LKLVY (SEQ ID NO:54).
117. (New) The system of claim 4, wherein said peptide is PKQKK (SEQ ID NO:55).
118. (New) The system of claim 4, wherein said peptide is AKKKT (SEQ ID NO:56).